

SCIENCE + WRITING UNIT PLAN

POLLINATOR FRIENDLY CAMPAIGN

INTERDISCIPLINARY UNIT PLAN

*Capstone
Excerpt*

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Unit Goals

Learners will **understand** how to develop opinions through reading and experiential learning activities.

Learners will **access, interpret, analyze, and evaluate** ideas and information, **draw evidence-based conclusions, synthesize** new learning with prior knowledge, and **reflect critically** on learning.

In writing, students will **build** the skills and techniques necessary to craft strong persuasive writing pieces. Writers will **persuade** others of their opinion by supporting reasons with details and text evidence, incorporating quotations to strengthen evidence, making comparisons, and including introductions and conclusions.

Scientists will **explore** the interdependence of plants, animals, and humans as it applies to pollination and environmental efforts. They will have experiential opportunities to **observe** phenomena as “students’ direct engagement with phenomena in science can help students learn” (Harris, et. al., 2015).



Learning Context



The **culminating project** will be a pollinator-friendly campaign in which students will use their gained knowledge of pollination and opinion writing to persuade members of the community to be mindful and purposeful when making choices that impact the pollinators in the community (gardening, use of pesticides, preserving ecosystems, etc.).

Throughout the unit, students will learn academic writing and language skills and deepen their understanding of science concepts in the context of **supporting their community** through project-based, interdisciplinary learning. Their writing will have an **impact** on their community and will “contribute to children’s sense of identity and agency” Jones (2015), setting the stage for them to find **value** and **purpose** in their work.



Standards

Writing Skills

CCSS.ELA-LITERACY.W2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section.

CCSS.ELA-LITERACY.W2.5 With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing.

CCSS.ELA-LITERACY.W.4.9 (begins in grade 4) Draw evidence from literary or informational texts to support analysis, reflection, and research.

Science Skills

K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive. [Clarification Statement: Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and, that all living things need water.]

K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. [Clarification Statement: Examples of plants and animals changing their environment could include a squirrel digs in the ground to hide its food and tree roots can break concrete.]

K-ESS3-1. Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live. [Clarification Statement: Examples of relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas; and, grasses need sunlight so they often grow in meadows. Plants, animals, and their surroundings make up a system.]

K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment. [Clarification Statement: Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.]

2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

Language Skills

CCSS.ELA-LITERACY.L2.2 Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

Speaking and Listening Skills

CCSS.ELA-LITERACY.SL2.1 Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.

CCSS.ELA-LITERACY.SL2.2 Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.



Essential Questions



Why are pollinators important?

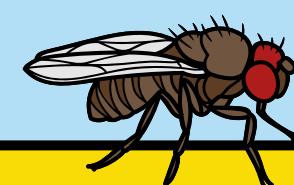
How can we create pollinator-friendly environments in our community?

How can we persuade others to be friendly to pollinators?





Assessments



Formative

The standard that will be **pre-assessed** in the unit is **CCSS W2.1**. Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section.

Students will complete a **quick-write** on something they like/dislike. Criteria: state your opinion, provide reasons and examples for your opinion. The teacher will use the second-grade opinion writing checklist to analyze student work samples and determine areas of strength and areas for growth that can be taught throughout the unit.

Formative assessments will take place during the writing portion of the integrated unit. Teacher feedback will be given throughout the unit, specifically focusing on the **elements of opinion writing**: stating an opinion, providing reasons and detailed examples, using craft and elaboration strategies to convince the reader. Students will also participate in a few rounds of **peer feedback** protocols and **self-reflection**. Effective feedback lessons, such as learning protocols for reflection and goal setting, along with giving and receiving feedback, will have already been taught earlier in the year during writing instruction. Revisitation may be needed if these protocols are not routine and predictable in the classroom already. Students will have time to revise their pieces using the **feedback** they receive, the **writing checklist**, and a **co-created rubric** for their final product.

Summative

Students will be given choice in the final product for a **summative assessment**. As this unit is designed to be a pollinator-friendly campaign, students will be **creating an artifact** that helps promote pollination and preservation of pollinator spaces. They can choose any of the following options for their final product: presentation to be shared on town website, brochure or magazine to be sent to community businesses, video or written advertisement, recorded song, co-created grant proposal for the school to build a pollinator-friendly garden.

The class will help to **co-create a rubric** for persuasive products. The class may come up with ideas such as: states an opinion, hooks the reader to want to know more about the topic, includes persuasive language, uses specific examples like data and expert quotes, etc. The teacher can help the class frame this into a structured rubric with the same language domains as their writing checklist: **Not Yet**, **Starting to**, and **Yes**. Within those sections, students and the teacher (acting as a facilitator of the learning) will outline each of the domain criteria. In other words, what components are evident in a product/element of a product that is "Not Yet" meeting expectations, "Starting to" meet expectations, or "Yes" (meeting expectations).

The rubric co-creation process will allow students to understand the expectations in a clear way. They will also have a deeper understanding of the project knowing each of the components for creating a successful artifact. It also allows students the freedom of choice in the final product, so long as students follow success criteria from the rubric.



Unit Outline

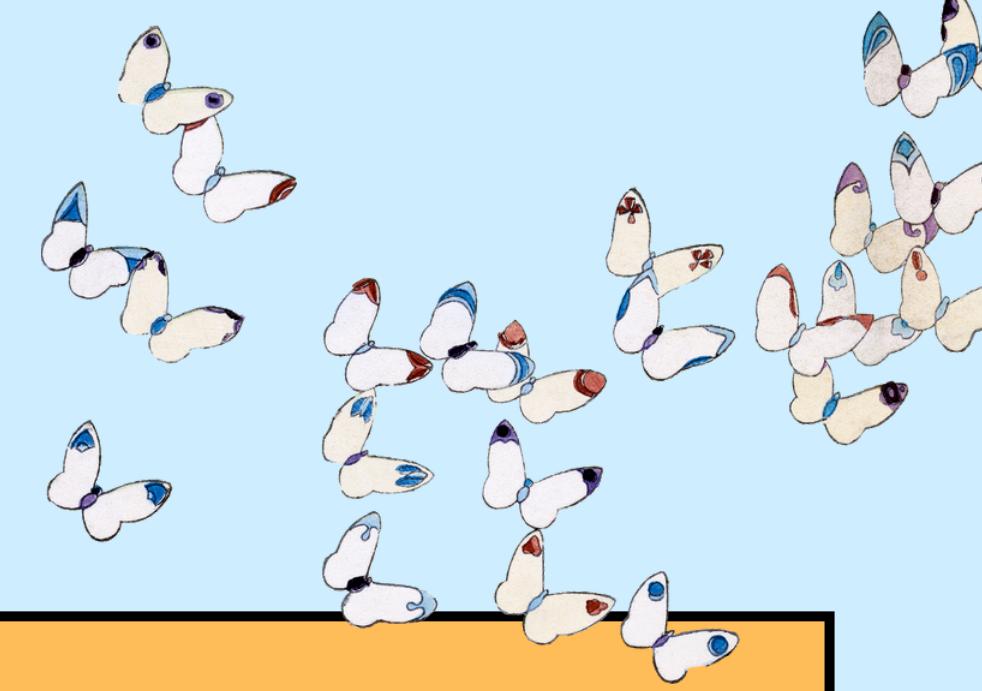
Lesson	Learning Target
1 (1 day)	I can explore different types of persuasive writing.
	I can ask questions about what I observe in nature.
2 (1 day)	I can compare and contrast exemplar pieces to understand the opinion genre.
	I can discuss what I notice, wonder, and infer about photos of nature.
3 (5 days)	I can draft an opinion piece about an interesting pollinator using persuasive craft moves.
	I can research different kinds of pollinators by reading and taking notes about the big ideas.
4 (3 days)	I can use what I know about opinion writing to draft my campaign piece.
	I can learn about the life cycles of plants and animals.
5 (1 day)	I can write a review on a pollinator-friendly product including specific examples of why it is great!
	I can make a model of a flower with all of its parts.
6 (2 days)	I can develop purposeful questions to interview experts to build evidence for my opinion piece.
	I can use models to learn how flowers reproduce.
7 (1 day)	I can include information provided by experts in my opinion in a way that grabs my reader's attention.
	I can explain the importance of pollination in nature.
8 (1 day)	I can include data evidence in my campaign piece to strengthen my opinion.
	I can explain why pollinators are important using data as evidence.
9 (5 days)	I can persuade others to support a pollinator-friendly environment.
	I can take action to promote a pollinator-friendly environment.
10 (1 day)	Celebration of Learning



Lesson Overviews



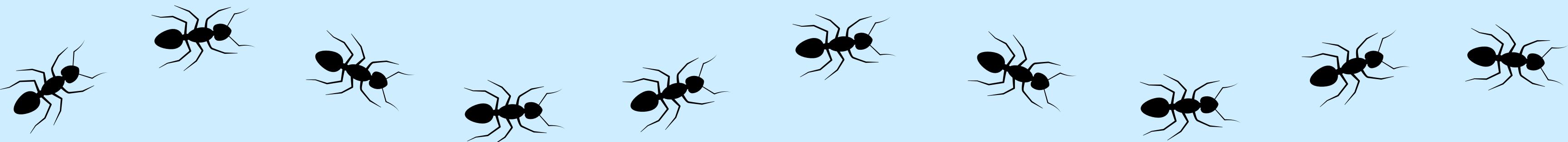
Lesson 1



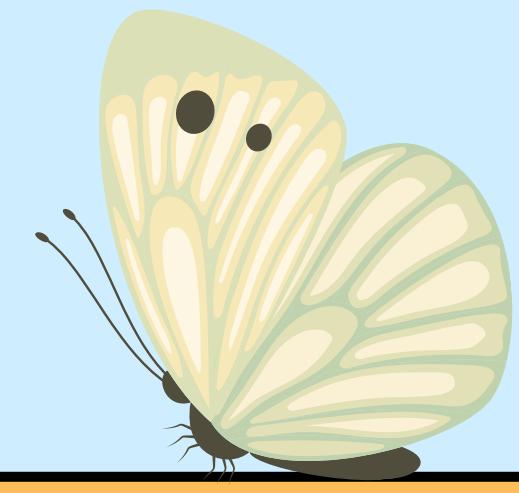
Learning Targets	Supports/Tasks/Activities
Writing: I can explore different types of persuasive writing.	<p>In this introductory lesson, students will explore the question: "What is persuasion?" Students will be provided with multimedia advertisements and nonpolitical campaign ads to absorb and learn from. Students can share what they notice and wonder about these materials. Then, the class can unpack the learning target. Define persuasion and how it is used through marketing in everyday contexts.</p>
Science: I can ask questions about what I observe in nature.	<p>Before students know what they are studying, it is important to build background knowledge. The kick-off activity will be a collection of authentic specimens (butterfly wings, plants, seeds) and products (pesticides, all-natural pesticides, bee-friendly seed packs). After in-class observations, students will venture to a pollinator-friendly garden (or other space with flowers and pollinators). They will be asked to observe and notice. This kick-off activity will challenge students to ask questions about what they observe in nature and make predictions about what they will be studying.</p>

Lesson 2

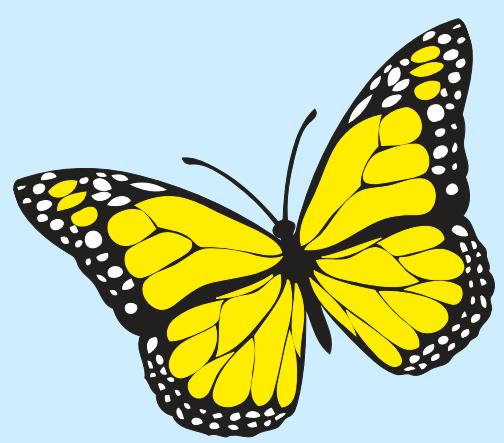
Learning Targets	Supports/Tasks/Activities
Writing: I can compare and contrast exemplar pieces to understand the opinion genre.	Students will be asked to answer two questions while exploring exemplar pieces: How does this author persuade you? What is the author doing to make you interested? Some exemplar articles might include: Youngzine Article- Bees and pesticides and Discover Article- BK on pesticides and bees. Students can use the second grade opinion writing checklist to critique the exemplars and notice the craft and language used in the pieces. To extend the lesson, it would be valuable to have students create an anchor chart of their noticings that students can later use for their own opinion pieces.
Science: I can discuss what I notice, wonder, and infer about photos of nature.	After students have had a chance to observe pollinators in nature, students can now explore photographs of the "unseen" or rarely seen phenomena that make pollinators so unique and special. To spark interest, students can participate in photograph scavenger hunts and attitude surveys about pollinators.



Lesson 3



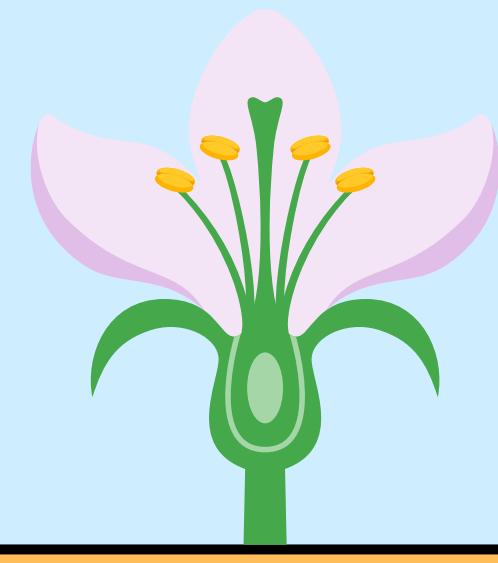
Learning Target	Supports/Tasks/Activities
Writing: I can draft an opinion piece about an interesting pollinator using persuasive craft moves.	Students draft an opinion piece about the pollinator they find most interesting (butterfly, bee, bat, fly, beetle, etc.). This week, they will explore how to "hook" their readers with an engaging lead, how to strengthen their opinions using reasons and specific examples, and how to encourage others to agree with their opinion. This first draft will be a practice piece for the final product in which they will be tasked to persuade others to be pollinator-friendly/pollinator-conscious when making environmental decisions.
Science: I can research different kinds of pollinators by reading and taking notes about the big ideas.	The science portion of this week's unit will focus on developing knowledge about pollinators. Students will be exposed to literature in hardcopy texts, ebooks, videos, articles, magazines, and other resources. Students will learn about "big ideas" in a nonfiction piece and how to take notes so that they can be utilized in their writing process pieces.



Lesson 4

Learning Targets	Supports/Tasks/Activities
Writing: I can use what I know about opinion writing to draft my campaign piece.	Students will begin this new draft by selecting their final product for the campaign. They can choose any of the following options for their final product: presentation to be shared on town website, brochure or magazine to be sent to community businesses, video or written advertisement, recorded song, co-created grant proposal for the school to build a pollinator-friendly garden. The teacher will revisit the anchor chart from the beginning of the unit. The class will help to co-create a rubric for persuasive products so that expectations are clear and students are set up for success. Students will be expected to complete a written piece for this assignment though the format will be different depending on the final product they chose. For example, the video advertisement would require a written script of what the student plans to say. Students will spend a few days writing a first draft of their campaign piece. They can use resources from their first draft.
Science: I can learn about the life cycles of plants and animals.	Students will learn about life cycles of plants and animals (particularly pollinators) by examining scientific diagrams and watching videos. An overarching question for this learning target might be: Why are life cycles important?

Lessons 5 + 6



Learning Targets	Supports/Tasks/Activities
<p>Writing: I can write a review on a pollinator-friendly product including specific examples of why it is great!</p>	<p>Students will learn the power of reviews! They can explore kid-friendly reviews of various products. They might have a visit from an expert, an advertiser for the district or someone in the community that works in marketing, who can explain why reviews are helpful to promote a product or an idea. Students can create their own reviews through different ways - video recording, poster, typed article similar to an Amazon review. These reviews can be added to their final product in some way to strengthen their opinion piece.</p>
<p>Science: I can make a model of a flower with all of its parts.</p>	<p>Students will learn the specific parts of a flower to build background knowledge to the proximate lesson on plant reproduction.</p>
<p>Writing: I can develop purposeful questions to interview experts to build evidence for my opinion piece.</p>	<p>Day 1: develop the questions by looking at other interviews, watching an interview Day 2: interview people in the community that support the opinion (parks and rec, gardeners, families with gardens, beekeepers, in our community there is a museum with a pollinator friendly garden - maybe speak with the gardener there)</p>
<p>Science: I can use models to learn how flowers reproduce.</p>	<p>Students will use their flower models and pollinator figurines to mimic the plant reproduction process in nature.</p>



Lessons 7 + 8

Learning Targets	Supports/Tasks/Activities
Writing: I can include information provided by experts in my opinion in a way that grabs my reader's attention.	Students will learn how to synthesize interview questions, purposely select information from the interview to include. They will also learn how quoting experts can be influential to audiences.
Science: I can explain the importance of pollination in nature.	In order to practice, students will team up with kindergarten classes to explain the importance of pollination in nature through a short skit. Day 1: Practice with partners, public speaking, thinking about the audience, modeling how pollination works. Day 2: Kindergarten meet-up! Students will be grouped by partners with some kindergarten friends. They will use their flower models to explain the parts of a flower and demonstrate with pollinator figurines how pollination works.
Writing: I can include data evidence in my campaign piece to strengthen my opinion.	Students will be exploring data in science today. In writing, they will learn how data is used to persuade people. Through provided resources, they will find data that supports their opinion and use them to strengthen their pieces.
Science: I can explain why pollinators are important using data as evidence.	Student scientists will analyze and interpret data related to pollinators. They will make evidence-based conclusions based on their data that they can include in their final product.

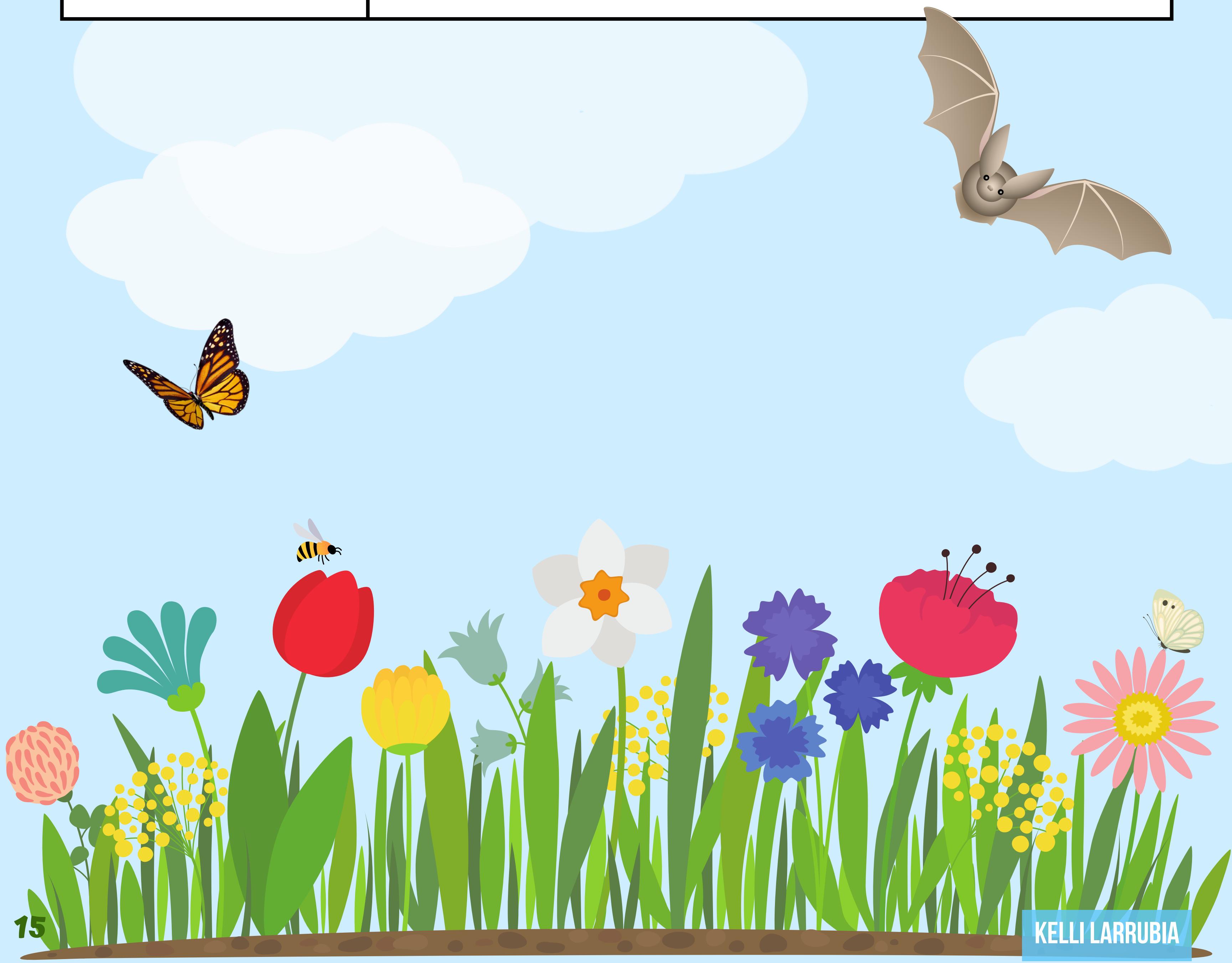
Lesson 9



Learning Targets	Supports/Tasks/Activities
Writing: I can persuade others to support a pollinator-friendly environment.	<p>This week, the focus of writing will be on revision. For the first two days, students will participate in rounds of peer feedback protocols. As this integrated unit takes place toward the end of the school year, feedback protocols should be familiar and comfortable to students. They will use the second grade opinion writing rubric to mark whether their partner is "Not Yet, Starting To, or Yes!" for each category of opinion writing (organization, lead, craft, elaboration, transitions, ending, conventions). They can also utilize the co-created rubric to determine whether their partner's product meets expectations. On the third day, students will review their feedback and complete a self-reflection activity to assess which areas need more attention before publication. On days four and five, students will either: work independently using resources as needed, or they can join the teacher in a small group seminar. Seminars will run every ten minutes and will focus on one part of the writing checklist. The last day might include some extra independent work time so students can make revisions.</p>
Science: I can take action to promote a pollinator-friendly environment.	<p>As a fun activity toward the end of the unit, students can participate in taking action to support pollinators. Students can build pollinator "hotels" made of natural materials to display around the school. Students can also plant wildflower seeds in their homes or at school to help feed the pollinators for the summer.</p>

Lesson 10

Learning Target	Specific aspects of your learning that will act as Supports/Tasks/Activities in Lesson
Celebration of Learning	Host a pollinator-friendly event where families, local gardeners, landscapers, and other community members are invited to come learn from the second graders about pollination and how they can make choices to benefit the environment for these creatures. Students can show off their posters, advertisements, and videos as a celebration of their learning!



Equity and Access

The Universal Design for Learning's big idea of choice is embedded throughout the unit with differentiation in mind. Students can also use their Multiple Intelligence strengths to their advantage in this unit by selecting options in a way they feel successful showcasing their knowledge. The various multimedia resources and final product options allow for students to access the learning in a way that is comfortable and easy for them to understand. As Jones (2015) states in her study, "effective writing pedagogy ... offers choices (e.g., of topic, of genre) whenever possible." Choice is especially important for young readers that are not able to access texts in ways that other children can.

For writers that can benefit from writing development support, the teacher can arrange for a small group of interactive writers who work on a final product together instead of individually. English Language Learners, depending on their language skills, might be more comfortable creating their piece in their native language. This can be helpful to reach more community members who may speak the same language! Students may even come up with additional ways to modify the learning in a different way (ex: pollinator dance with lyrics that teach about the environment). Creativity should be encouraged!



Impact on Student Learning

The research surrounding project-based learning and experiential learning conclude that these authentic learning opportunities are powerful for all children. One study previously mentioned argues “the benefit of the project-based science curriculum was similar for boys and girls and for students from different racial and ethnic backgrounds” (Harris, et. al., 2015). Additional research by Culclasure, Longest, & Terry (2019) suggests that PBL might serve to equalize opportunity gaps for disadvantaged or underrepresented student populations. Project-based learning motivates students intrinsically, which is the ultimate goal of educators, and students absorb the skills and knowledge within a unit when they can connect it to a real world purpose. Not only will children gain and maintain these skills and knowledge in this unit of study, but they will also make a positive difference in their community and environment. The celebration of learning can bring the school and community together for a common cause, and students will be able to find pride in their work and purpose in sharing it with others.



Featured Component of Project



Community connections are an integral part of this unit of study. There are several mentions of connections between student and community in this unit: final product choices, community experts, interviewing community members, and the celebration of learning at the culmination of the unit in which members of the school and town community can participate and learn together. Community members provide students a tangible connection to the outside world. Students can make deeper connections to their learning when they realize that they are helping the members of their community grow.



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Writing components of this unit were based from
Lucy Calkins Writing Workshop,
Opinion Writing Grade 2.

